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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/581,007	07/24/2000	GEORG LOHR	1384.1036	2196

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STAMFORD, CT 06905-5619

EXAMINER

GHULAMALI, QUTBUDDIN

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 05/14/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/581,007

Applicant(s)

LOHR, GEORG

Examiner

Qutub Ghulamali

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Acknowledgment***

1. This Office Action is responsive to the Amendment filed on 03/01/2004.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

The rejection (s) based on newly discovered art follows.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-16, 19-34, 37-40, are rejected under 35 U.S.C. 103(a) as being unpatentable over Fullerton et al ("Fullerton") (US Patent 5,995,534) in view of Dent et al ("Dent") (US Patent 6,234,587, new art).

Consider claims 1, 19, 38, 39 Fullerton teaches Fullerton et al teaches (figs. 9, 10) a transmitter 901 and a receiver 903 employing a single sub-carrier ultra wide-band impulse radio channel, the transmitter 901 and the receiver 903 are separated by a propagation medium 905, such as air, space, or other medium cable for propagating ultra wide-band signals, the

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transmitter 901 comprises a time base 1002 that generates a periodic timing signal 1004, the time base 1002 comprises a voltage controlled oscillator (VCO), or the like, the periodic timing signal 1004 is supplied to a code source 1006 and to a code time modulator 1008, the output of the code time modulator 1008 is the code timing signal 1014, the signal 1014 modulated by 1016 generates a modulated, coded timing signal 1026 that is sent to output stage 1028 and propagated as emitted signal 1012, with inherently low power spectral densities (see col. 1, lines 38-40; col. 2, lines 10-27, 48-54; col. 6, lines 42-48; col. 7, lines 3-6; col. 13, lines 20-50; col. 14, lines 52-65). Fullerton, however, does not disclose the transmitter to be moveable relative to the receiver. Dent discloses a method and system (fig. 1) wherein the transmitter 102 transmit at the first frequency  $w_1$  at one location and then move to another location before transmitting at the second frequency  $w_2$  providing movement of the transmitter with respect to the receiving stations 104, 106 etc. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Fullerton's communication system to provide moveable transmitter for transmitting signals to receivers so as to have convenient access to signals by receivers as taught by Dent (col. 7, lines 15-34).

Consider claims 2, 3, 21, Fullerton et al teaches (figs. 9, 10) a transmitter 901 and a receiver 903 employing a single sub-carrier ultra wide-band impulse radio channel, the transmitter 901 and the receiver 903 are separated by a propagation medium 905, such as air, space, or other medium cable for propagating ultra wide-band signals, the transmitter 901 comprises a time base 1002 that generates a periodic timing signal 1004, the time base 1002 comprises a voltage controlled oscillator (VCO), or the like, the periodic timing signal 1004 is supplied to a code source 1006 and to a code time modulator 1008, the output of the code time

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modulator 1008 is the code timing signal 1014,, the signal 1014 modulated by 1016 generates a modulated, coded timing signal 1026 that is sent to output stage 1028 and propagated as emitted signal 1012, with inherently low power spectral densities (see col. 1, lines 38-40; col. 2, lines 10-27, 48-54; col. 6, lines 42-48; col. 7, lines 3-6; col. 13, lines 20-50; col. 14, lines 52-65).

Regarding claims 4, 5, 7, 8, 22, 23, 25, 26, Fullerton et al teaches transmitter 901 comprises a time base 1002 that generates a periodic timing signal 1004, the time base 1002 further comprises a voltage controlled oscillator (VCO) (col. 13, lines 34-40; col. 19, lines 40-50).

With regards to claims 6, 9, 10, 24, 27, 28, 37, 40 Fullerton et al teaches, the subcarrier generation and modulator generates a signal that is modulated by the information signal by frequency modulation (FM) techniques, amplitude modulation (AM), phase modulation, frequency shift keying (FSK) phase shift keying (PSK), pulsed FM, or the like (col. 3, lines 60-67).

Regarding claims 13, 14, 15, 31, 32, 33, Fullerton et al teaches, FM subcarrier embodiment utilize a phase-locked loop (PLL) frequency demodulator (col. 18, lines 9-15)

Regarding claims 11, 12, 29, 30, Fullerton et al teaches, each of the modulators (1008, 1016 and 1208) functions to time delay a signal (e.g., the periodic timing signal 1004) according to information conveyed by a trigger signal (e.g., code signal 1010 or modulated subcarrier signal 1024.) thus, each modulator is therefore considered a delay generator (col. 19, lines 50-57).

Regarding claims 16, 34, Fullerton et al teaches, the address 2105 provided by address counter 2104 is used to access a PN code ROM 2106, the ROM 2106 stores PN (pseudo-

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random noise) code of a predetermined modulo, each address 2105 output from the address counter 2104 accesses a storage location in the ROM 2106, which in response thereto, outputs a PN code 2108, the PN codes are used to time-position modulate pulses ahead or back in time for channelization and spreading of the monocycle pulses of the impulse radio signal (col. 21, lines 27-67; col. 22, lines 1-3).

5. Claims 17, 18, 35, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fullerton et al (US Patent 5,995,534) in view of Dent et al ("Dent") (US Patent 6,234,587, new art) as applied to claims 1-16, 19-34 above, and further in view of Ohashi et al (US Patent 6,240,126).

As applied to claims 1-16, 19-34 above, Fullerton and Dent in combination teaches every feature of the claimed invention, but does not explicitly teach controller for receiver synchrony with the modulation in said transmitter and receiver. In the same field of endeavor, Ohashi et al with reference to claims 17, 35, teaches (figs. 1, 8a), the controller 35 control the up-converter 23 to multiply the modulation signal  $t$  with a frequency hopping signal supplied from the PLL circuit 25 creating a frequency spread modulation signal  $u$  and transmitted via the switch 27 and the antenna 28. In a similar way the receiving frequency spread modulation signal  $u$  from the communication device is supplied to the low noise amplifier 31 via antenna 28 and switch 27, multiplied by the frequency hopping signal supplied from the PLL circuit 25 creating a frequency de-spread modulation signal  $t$ , the signal  $t$  is supplied via the interface 21 to the external circuit via a reception data path 106.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Fullerton and Dent communication system to provide for a

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controller circuit to synchronize modulation function between the transmit and receiver communication units to enhance the spectral power density of the transmitted/receive signals as taught by Ohashi et al, see col. 6, lines 23-33, 50-59; col. 15, lines 40-55.

Regarding claims 18, 36, Fullerton in combination with Dent teaches every feature of the claimed invention referenced above, but does not explicitly teach an additional synchronization signal for controlling the modulation of said transmitter or transmission circuit and receiver. In the same field of endeavor, Ohashi et al with reference to claims 18, 36, (fig. 8a), even though does not show additional synchronization signal, teaches a transmit and receive circuit identical in nature utilize the PLL perform communication during the up conversion and down conversion of signal t in the modulator via the controller 35, see figs. 8a, 8b. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Fullerton and Dent to include the circuit consisting of the phase lock perform modulation control function as taught by Ohashi et al to enhance the spectral power density of the transmitted/receive signals.

### Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

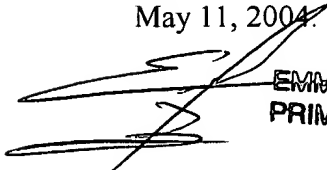
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lomp (US Patent 6,611,548) is cited as art of reference.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (703) 305-7868. The examiner can normally be reached on Monday-Friday from 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 703 306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QG.  
May 11, 2004

  
EMMANUEL BAYARD  
PRIMARY EXAMINER